OCTOBER, MDCCCLXV.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCLXXXIX.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

The Insect Hunters.

By EDWARD NEWMAN, F.L.S., F.Z.S.,

LATE PRESIDENT OF THE ENTOMOLOGICAL SOCIETY.

I have written this little book expressly for those who do not pretend to consider themselves experienced naturalists. I do not assume any knowledge on the part of the learner, but begin at the beginning, and attempt to educate the reader up to the point of understanding my more complete and extended 'Familiar Introduction to the History of Insects;' indeed I am not altogether without a hope that some will consider this inexpensive and unassuming book a sufficient Introduction to the Science.—EDWARD NEWMAN.

"UNRIVALLED AS A FIRST-BOOK IN ENTOMOLOGY."—*The late William Spence, F.R.S., one of the Authors of the celebrated 'Introduction to Entomology.'*

"*Undoubtedly* the best and most useful of Mr. Newman's entomological works."—*H. T. Stainton, Esq., F.L.S., Entomologist's Annual for* 1858.

Price Two Shillings and Sixpence.

JOHN VAN VOORST, 1, Paternoster Row.

The Insect Hunter's Companion,

By the Rev. JOSEPH GREENE, M.A.,

Teaches where to find moths and butterflies; how to catch them; how to bring them home without injury; how to kill them; how to set them; how to find the caterpillars; how to manage them; how to feed them; how to breed the perfect insects; where to find chrysalises; what to do with them; how to keep mites and mould out of cabinets; how to cure grease; how to relax insects when they become stiff; how to arrange them in cabinets, &c.

Price One Shilling and Sixpence.

JOHN VAN VOORST, 1, Paternoster Row.

Life-History of Chortobius Davus.—The egg is barrel-shaped, the sides convex and delicately ribbed, the extremities truncate, attached by the lower extremity to the linear setiform leaves of Rhynchospora alba (beak-rush), on which they are laid at the end of June, always singly, and generally only one on a leaf, but sometimes two, and very rarely three. The young larvæ emerge in fifteen days, and crawling to the extremity begin feeding; they feed during the day, and grow very slowly; they rest on the leaves in a perfectly straight position, but on being annoyed fall from their food on the Sphagnum or other mosses among which the Rhynchospora usually grows, and there lie in a bent posture, as if dead, until all appearance of danger has passed, when they reascend the leaves: when among the moss it is almost impossible to detect them. At the end of August those under my care ceased to eat, and on the 1st of September I made the following description:—Head semiglobose, wider than the body, slightly notched on the crown, beset with minute hairs; body linear, its sides almost parallel, but slightly and gradually attenuated towards the anal extremity, which terminates in two points directed backwards; dorsal surface transversely and regularly wrinkled, and covered with extremely minute warts, which under a lens give the surface the appearance of extremely fine shagreen; the dorsal wrinkles divide each segment into sections. Colour of the head dingy semitransparent green; the ocelli very prominent and intensely black: colour of the body dingy green, with five narrow, equidistant, distinct, purple-brown stripes; the interspace between the second and third stripe on each side is intersected by a very narrow and indistinct stripe, almost similar in colour to the other five, and the exterior purple stripe on each side is bordered below by a pale glaucous, almost white stripe, extending throughout its entire length. Immediately after this description was written the larvæ disappeared, probably secreting themselves at the roots of their food-plant. In the spring of 1865 I saw nothing more of these larvæ, but received a fresh supply on the 26th of May, when they appeared full-fed. The larva then rests in a perfectly straight position on the blades of the beak-rush, falls off its food-plant when annoyed, and remains quiescent for some time as if dead, in a somewhat bent position. At this date I made a second description:—Head rather wider than the 2nd segment, distinctly exserted, prone, scabrous with minute warts; body cylindrical, slightly and very gradually attenuated towards the anal extremity, which terminates in two parallel points above the anal flap, and directed backwards; surface of the body almost smooth; warts indeed are observable, but so minute as not to communicate a scabrous appearance, nor are there any noticeable hairs or bristles. Colour of head and body apple-green, inclining to olive-green; head dull opaque, uniformly coloured; body striped; a narrow mediodorsal stripe dark purple-green, bordered on each side by a still narrower yellow stripe; these three stripes terminate before the anal point; on each side are two pale yellow stripes, one above the other below the pale brown spiracles; the upper of these is bordered above and below with dark bluish green, and terminates in the anal flap, which is tinged with pink; the lower terminates before the anal flap; ventral surface, legs and claspers bottle-green. Two days subsequently—namely, on the 28th of May—they underwent pupation. The pupa has the head truncate and slightly produced at the angles and also in the middle; the wing-cases very slightly produced at the shoulders; the thorax is dorsally convex, with a very slight median keel; the pupa is suspended by minute cremastræ from a white silken web spun on the edge of a leaf of its food-plant; the colour of the wing-cases is pale brown, with a darker arcuate median linear mark extending from the base to the margin, and a much shorter mark of the same colour in front of this, originating in the disk, but also extending to the margin; head, thorax and abdomen apple-green, irrorated with dingy whitish green. The butterflies produced from the individuals described appeared on the wing on the 4th and 5th of June. I am indebted to Mr. Hudson for specimens of the egg, larva and pupa; for a supply of the food-plant; and for information respecting the economy of this species. A brief description of the larva having already appeared in the 'Entomologist,' this life-history cannot suitably appear in that journal.—*Edward Newman.*

Life-History of Pygæra bucephala (buff tip).—At the beginning of June these singular moths may frequently be found coupled in pairs on the trunks of lime, elm and other trees, or on the herbage below them, the truncate heads and closely convolute wings giving each pair the appearance of a single piece of dead and dried stick. As soon as they separate the eggs are laid in a patch of from thirty to sixty, mostly on the upper side of a leaf; they are convex above and flat beneath, of a China white colour, and having, in the middle of the convex portion, a very conspicuous black dot, at which the young larva emerges in fourteen days; and after eating a portion of the egg-shell around the point of emergence, they feed in company on the upper cuticle and the parenchyma of the leaf, leaving the veins entire and connected by the lower cuticle: they have then large shining black heads, and much narrower yellow bodies, beset with long soft hairs, and adorned with series of black spots or blotches, of which the mediodorsal series is by far the most conspicuous, the lateral series consisting of minute and inconspicuous spots; the dorsal surface of the 2nd segment as well as the whole of the 13th segment is black, as are also the anal claspers, which are constantly elevated, rarely touching the leaf on which the little creatures are standing: after eight days they undergo the first moult, and then separate into little companies of six, eight or ten, each company ascending to the tip of a leaf, and feeding at the edge in the usual manner; but when resting each little company huddles together on the surface of the leaf, reposing side by side with the anal claspers elevated: the head is now still more largely developed, much broader than the body, and shining black; the dorsal surface of the 2nd and 13th segments are still black; after a second moult the head is less conspicuously large, and the body more variegated: as the larva continues to grow the markings develope themselves; and the head and body become covered with soft flexible and rather long hairs. The larvæ are full fed towards the end of July, and are readily found by the devastation they cause: each brood fixes on some topmost or outside branch of Ulmus campestris (elm), Tilia europæa (lime), Corylus avellana (nut), or other tree, for it appears a very general feeder, and, completely stripping off the foliage, leaves the twigs as bare as in the depth of winter: these voracious colonies are seldom within reach of the hand, but if a stick be thrown up the larvæ descend in a perfect shower; they are extremely flaccid and never roll in a ring, but almost immediately on regaining their legs turn their heads towards the trunk of the tree whence they have been shaken, and reascend, traversing the branches and twigs until they attain an elevation and exposure satisfactory to their minds. The head of the full-fed larva is prone, exserted, and of nearly the same width as the body; it is covered with crowded but minute punctures, and with fine silky hairs; body uniformly cylindrical, clothed with very fine silky hairs, and having a glabrous corneous plate on the 13th segment, which decreases in size after each moult. Colour of the head black, with a bright yellow mark on the face in the form of a letter V reversed: the base of the antennal papillæ is also yellow: colour of the body dull yellow, with a transverse band about the middle of each segment of a deeper colour, almost orange; and on each side, alternating with these orange bands, which occupy the verrucose portions of the surface already noticed, is a series of obscure and ill-defined markings, almost white; there are also nine longitudinal black stripes extending from the 3rd to the 12th segment, both inclusive; these stripes are interrupted throughout by small circular yellowish dots, each of which has a minute central black dot, emitting a white hair; of these nine stripes the mediodorsal is somewhat the broadest and decidedly the most conspicuous; between the third and fourth lateral stripes are the intensely black spiracles; there is also a glabrous corneous black plate occupying the anal flap; legs intensely black and shining, and having dull blackish markings above their base; ventral claspers with a black shining exterior corneous plate, and smoke-coloured markings on the outer surface; anal claspers black and still elevated when at rest; belly yellow, with two series of black blotches between the fourth pair of ventral and the anal claspers. These larvæ, having arrived at their full-fed condition, descend the trunks or stems of the trees on which they have fed, and crawl about the surface of the ground with great activity, often crossing dusty roads and leaving long circuitous tracks in the dust; sometimes marching over flagged pathways, and being consequently trodden under foot of man, by which casualty hundreds come to an untimely end; those which escape nestle at the roots of herbage or under fallen leaves, and change to pupæ on the surface of the earth, without any web, cocoon, or protection of any kind, and with so little attempt at concealment that they are frequently seen by the passing entomologist, and are sometimes in such abundance that boys collect them to sell to dealers in entomological specimens at a penny or twopence a dozen: they also constitute a favourite food of poultry, and are sought for with great eagerness; dame Partlet may often be seen scratching for them in my own neighbourhood under the lindens. The pupa is regularly punctate, but slightly shining; its colour is very dark brown; a deep dorsal notch divides the 12th and 13th segments; the latter terminates in two very singular processes, each of which is furcate, the prongs divaricating and acutely pointed.—*Edward Newman.*

Life-History of Hadena rectilinea.—The egg is laid in June on the leaves of Salix caprea (sallow), and the young larva emerges in July; it feeds with great voracity, and grows very rapidly, attaining its full size before it retires for the winter, which is usually about the end of October, but sometimes earlier: in a state of nature they probably hybernate on the surface of the ground, under the fallen leaves of the sallow; but in confinement they have a diversity of practice, sometimes concealing themselves in the *débris*, covering the earth in the breeding-cage, sometimes ascending the sides of the cage and adhering to the sides or top: they also differ in another respect, sometimes covering themselves with a slight web, at other times being perfectly exposed: towards the end of March they appear to become more lively, and crawl about the cage; they are, however, much reduced in size by the winter's abstinence; if supplied with twigs of sallow they do not appear to eat the opening leaves, but prepare for pupation. The larva now rests with its head frequently turned on one side until it touches the 9th segment; if annoyed, it falls to the ground rolled in a compact ring, feigning death, and remains in that posture several minutes. Head semiporrect, subglobose, highly glabrous, slightly narrower than the 2nd segment: body nearly uniformly cylindrical, but slightly attenuated towards the anterior extremity; the 12th segment is transversely dorsally elevated, but not very conspicuously so; the surface is velvety and iridescent, the iridescence resulting from the light falling on the delicate soft short pile with which it is covered; the anal claspers are spreading. Colour of the head dark brown, and, like the body, iridescent: dorsal surface of the body dark rich umber-brown, clouded and variegated with lighter and darker shades; a darker shade forms an obscurely defined mediodorsal stripe, which emits at the posterior margin of each segment a branch, extending obliquely downwards and forwards, until it reaches a broad dark lateral stripe that terminates abruptly on a level with the spiracles, which are wainscot-brown; ventral surface, extending upwards to the spiracles, purple-brown, with a bloom like that of a ripe plum, and delicately reticulated; 12th segment crowned with two dorsal yellow spots placed transversely; dorsal and ventral surfaces separated on the 2nd, 3rd, 12th and 13th segments by a yellow line; legs and claspers reddish brown. Descends to the ground and undergoes pupation just below the surface of the earth: the perfect insect appears in May. I was indebted to Mr. N. Cooke for a supply of these larvæ in the autumn of 1864.—*Edward Newman.*

Description of the Larva of Acidalia rubricata.—The larva when full fed is not quite an inch in length; in shape rather slender, tapering towards the head; the head itself is notched, having the lobes rounded and swelling out wider than the second segment; the whole body is ribbed with transverse rings. The ground colour is gray or ochreous on the back, paler on the belly. The dorsal line is composed of two very fine dusky threads; there is a thicker and darker subdorsal line, commencing on each lobe of the head, and vanishing again after the fourth segment; as far as this extends there is between it and the dorsal line a pale gray stripe; on the next five segments both these subdorsal lines reappear only as a light or black spot at the segmental divisions, while on the back of the same segments there are five elongated dusky lozenges faintly edged with black; the remaining segments are paler both in ground colour and in distinctness of lines. The spiracles are black, placed in a drab longitudinal ridge, which is bordered above by a fine black line and below by a wider one. All the dark lines and marks become much fainter as the larva approaches its final change. The pupa is apparently placed in a slight cocoon under moss: the moth appears on the 29th of June.—*Rev. John Hellins, in the 'Entomologist's Monthly Magazine.'*

Description of the Larva of Toxocampa craccæ.—Larva (when full-grown) 1¼ to 1½ inch in length. When viewed from above it tapers towards the head, and still more towards the posterior end; but when seen sideways appears almost uniformly long and slender. Its manner of walking is a partial looping of the first six segments: the first two ventral prolegs are very slightly shorter than the others, but to such an extent as to be scarcely noticeable, and it generally assumes an undulating posture in repose along the stem of its food-plant. Along the back, commencing on the head, is a dark brown, very finely mottled, broad stripe, widest along the middle segment; and with an additional widening on the eleventh segment; in the centre of this is a thin, rather paler stripe, enclosing the very dark brown dorsal line. The subdorsal stripes are double, brown, with a paler ochreous-brown ground, followed by a pale stripe of ochreous, enclosing a very thin brown line; the lateral lines double, dark brown, extending from the mouth to the anal prolegs; edged above with black at the anterior portion of each segment; the upper one widening below in the middle, along which are some black dots. Belly and legs brown. Within the dark portion of the back, on each segment, are placed four black dots in the usual order, and on the eleventh segment there is an additional black dot on each side, outside the dark region. Subdorsal lines, also, containing two black dots and a minute ring. Went to earth on the

24th of June.—*William Buckler* (*Emsworth, Hants, July*, 1865) *in the 'Entomologist's Monthly Magazine.'*

Life-Histories of Sawflies. Translated from the Dutch of M. Snellen van Vollenhoven, by J. W. May, Esq.

(Continued from page 9638).

Hylotoma Rosæ, *L.*

Linnæus, Syst. Nat. ii. 925, 30. *Fabricius, Spec. Ins.* 413, 39. *Goedaert, Metamorph. Nat.* i. 28. *Rösel, Ins. Belust.* vol. ii. *Humm. u. Wesp.* pl. 2, p. 15. *Réaumur, Mémoires,* vol. v., Mém. III., p. 102, pl. 14, fig. 1—12. *De Geer, Mémoires* (German transl.), vol. ii. sec. 2, p. 279, pl. 39, fig. 21—29. *Hartig, Blatt-und Holzwespen,* p. 85, No. 13. *Bouché, Naturgesch. d. Insecten,* p. 135. *Brischke, Abbild. und Bescreib.* p. 11, pl. 11, fig. 4.

Hylotoma rubro-flava, capite cum antennis, thoracis dorso, pectore, alarum costa antica, nec non tibiarum et tarsorum articulorum apice nigris.

From the above references, which might easily be added to, it will be seen that this insect has long been known and frequently written about and described, both in the imago and the larva state. In order to avoid repetition, I will first give an account of my own observations, and then see in how far those of other authors differ from them. I wish, however, first to make a remark concerning the nomenclature: it might, possibly, be said that the sawfly now under consideration cannot be the Tenthredo Rosæ of Linnæus, as this author, in the work above referred to, speaks of "antennis septemnodiis." There can, however, as De Geer has remarked, be little doubt that Linnæus had our insect in view, as he refers to the figures by Réaumur and Rösel, either of which can represent no other than this species. It is probable that he wrote his description without having the insect actually before him. Hartig writes "Rosarum, *Fabr.*," probably only a slip of the pen; it is, however, possible that Klug had, before him, also made the same mistake, which I cannot now verify.

Towards the end of July last year I had already observed, for above a month, a good many of these larvæ on bushes of Rosa centifolia in my garden; some of the larvæ were young and some full-grown, so that they could not all have been from one brood. On the 22nd of July I collected a considerable number for the purpose of describing and figuring them, and intending, if possible, to rear them. It happened that a couple of days after I also received a good number, which Mr. B. Wttewaall had found in Mr. Hartevelt's garden, on Rosa pomifera, and which he sent to me for rearing.

The length of the largest individuals was 2 centimetres, as represented at fig. 3 in our plate. The head was shining orange, the eyes black and circular, set in two round black spots. At the top of the clypeus were two brown spots like inverted commas. The jaws were orange, with the apices brown; the antennæ, which were below the eyes, were very small, annulated with a somewhat darker tint, the lips orange. On the head were some minute punctuations and little gray hairs. Some were destitute of the comma-like spots; in others these spots were much enlarged, almost forming a crescent.

The larvæ of the genus Hylotoma are generally stated to have eighteen legs: on very close examination I found my larvæ had three pairs of thoracic legs, six pairs of abdominal legs, and two almost confluent anal legs; the sixth pair of abdominal legs were, however, remarkably small, and appeared as if they could be wholly withdrawn under the skin.

The thoracic legs were obscure green, with a black spot on the upper side of the base; they were armed at the end with a brown claw, below which was a little round bladder. Fig. 4 represents the head, together with the first segment and one thoracic leg in profile. The other legs were pale obscure green, with a little black spot just above the base.

The whole creature was very glossy and of a greenish gray tint; the back was orange from the second to the eleventh segment, the first and twelfth being greenish; but above the anus, on the last segment, the colour was orange. In the folds dividing the orange-coloured segments on the back the skin was green. On either side of the body, just above the legs, was a row of eleven large black knobs, each bearing a certain number of little short hairs. On the upper surface of each segment were two rows consisting of six pretty large black spots and a few smaller ones, on each of which was a single hair (see fig. 5). The stigmata were small, margined with white, with a small horny spot on either side. Above the anus on the last segment was a row of four small spots, and below this a very large black spot, as shown at fig. 6.

It appeared to me at the time a singular circumstance that the particles of excrement of these larvæ were always of two colours; I have, however, since observed the same thing to occur in other species, and in various colours. In the case of the species under consideration, the particles were of an oblong shape, rounded off at each end, being somewhat narrower in the middle and always having a clear white elliptical spot on one side.

The larvæ were tardy in their movements, keeping the abdomen somewhat curved round underneath, and, when observed, were generally feeding, so that their presence on my rose-bushes was easily recognizable. They devoured the leaves right up to the midrib.

On the 26th of July the number of the larvæ in the garden began to diminish, and those which I had kept in a jar began to crawl about in an unsettled manner, and appeared, as I thought, to be looking about for a suitable place in which to pupize. I put some hollow stems of Deutschia scabra into the jar, as some sawfly larvæ have a custom of creeping into the hollow stems of plants for the purpose of undergoing their change; but, after crawling about for some time, my larvæ, totally disregarding the hollow stems, spun up among the withered rose leaves, which were lying on the sand at the bottom of the jar.

The cocoons of these insects were very curious; they were double, the outer case being very pale yellowish brown, extremely tough, and having large meshes like a miniature cocoon of Cimbex Amerinæ. Some of them were entirely covered with grains of sand, but as these easily came off on being touched, it appeared they were not spun together by a web, but had merely been accidentally included in the meshes. On cutting open the first cocoon a second was discovered, consisting of a very fine and apparently membranous tissue, which seemed to be quite free from the external cocoon, as it could be readily taken out of it. Fig. 8 represents the cocoon of the natural form and colour, and fig. 9 a cocoon of which the outer coat has been partly torn off, leaving the inner part projecting beyond it.

In September I found the contained larvæ had not yet changed to pupæ; on the other hand, during the first week of that month, a considerable number of young larvæ of another brood had established themselves on the rose-trees in my garden. I had not observed any imagos during the month of August; I nevertheless concluded that the eggs which had produced these young larvæ had been laid during that month, because at this time I observed on the twigs of my rose-bushes an appearance I had not noticed before, namely, that all the twigs bearing leaves on which young larvæ were found were very much bent round, and that at the inside of the curve there was a long ferruginous scar, as if the epidermis had become loosened and the under-lying tissue was wrinkled (fig. 16). I conclude that at this spot the epidermis had been opened by the saw of the female, and in the incision so made the eggs had been deposited.

The young larvæ were green with merely a trace of yellow on the second and penultimate segments. They differed, moreover, considerably from the full-grown individuals, in that their heads and thoracic legs were shining black, but they already exhibited the rows of black dots and the black anal spot. Figs. 1 and 2 represent the young larvæ at different periods of growth.

On the 17th of June of the following year the first imagos of those which I had in confinement made their appearance, thus having passed ten months and a half in the cocoon; that is to say, unless all the July larvæ had died, and only those taken in September had produced imagos; in which case they would only have been eight months in completing their metamorphosis. Judging from the number of imagos I got I think the first supposition the more probable. It was immediately evident from the structure of the antennæ that these imagos belonged to the genus Hylotoma, these organs being composed of only three joints, the first two of which were very small, and the last unusually long. In the male this last division was slender, curved upwards, of the same thickness throughout, and closely covered on one side with fine separate hairs (see fig. 11). In the female this part was shorter, slightly clavate and smooth (see fig. 12).

The imago (fig. 10) is pretty stout, the head and thorax somewhat hirsute, for the rest smooth. Length 8 millimetres, expanding to 17. Head black, having the eyes brown; palpi yellow; antennæ black, having occasionally a red or yellow tinge on the upper surface. The thorax is yellow, except on the dorsum, from the prothorax to a spot above the scutellum, and at the sides to within the tegulæ; underneath, on the breast, is a shining black spot. The abdomen is shining yellow, with merely a little black on the margins of the valves of the saw and of two little projections on the last segment. Legs yellow, with little black spots on the coxæ and apophyses; the apices of the tibiæ and of the first three joints of the tarsi, as likewise the last two joints, are also entirely black. On either side of the claws are some stiff setaceous hairs, and between them a pad. The wings are yellowish, from their insertion to beyond the middle; the space between the costal and post-costal nervures is black, as is also the stigma, this latter being bordered with yellow; further all the nervures are deep yellow, except the one between the second and third discoidal cell, which is black. Fig. 10 represents the female magnified.

The male differs in being smaller and more attenuated, also in the shape of the antennæ and of the last abdominal segment, added to which the anterior and intermediate coxæ are generally entirely shining black. In order to show the difference in the appearance of the abdomen in the two sexes, I have figured the terminal segments of both. Fig. 13 represents that of the male; *a* appeared to me to be the penis; *c* the head of one of the two little black processes, which are also found in the female: fig. 14 is the female abdomen, in which *b* represents the saw, curving outwards and downwards between the terminal valves: lastly, at fig. 15, are the saw and ovipositor. The superior portion, which is somewhat serrated at the apex, represents the left half of the ovipositor and the inferior portion the left valve of the saw. This is armed at the under side with a number of angular and square teeth, and at the sides with rows of exceedingly sharp points.

From what has been stated, it may be concluded that this species produces but one or at most two generations in the year. I found, however, that, taking individual cases, the progress of the metamorphosis was very unequal: thus Dr. Wttewaall informs me that from a number of larvæ, which he collected and took home on the 4th of July, 1857, some imagos made their appearance on the 25th of July, making an interval of twenty-one days, and that others did not develope till the 29th of May of the following year. It is difficult to suggest a cause for this difference, as the conditions and circumstances were the same for the whole number of larvæ.

I will now note in how far other authors differ in their accounts from what I have stated as the result of my own observations.

From various points in Goedaert's twenty-eighth description, contained in his first volume, I conclude that he had this insect in view; but more particularly from the fact that he represents the antennæ of the imago as somewhat clavate. The life-history agrees very well (his insects also remained ten months in the cocoon), but the figure of the larva, otherwise tolerably good, shows only sixteen legs, instead of eighteen.

Rösel informs us that he met with this species on willows and gooseberry-bushes; I take the liberty of doubting the correctness of this, and conclude that he must have taken some species of Nematus for our present insect, there being members of that genus strongly resembling Hylotoma Rosæ. He does not say that he reared the larvæ found on willow and gooseberry, but only that he observed them. This author further informs us that the young larva curves the body upwards, often even supporting itself on the six thoracic legs only: if my conclusion is correct, this is also founded on a confusion with Nematus, and can be readily accounted for on the same ground as the former observation. All the rest exactly agrees with our own observations.

Réaumur also speaks of the body being held in the form of an S; speaking of the thoracic legs of the larvæ, he says the latter may be distinguished from caterpillars by having two claws on these members. De Geer has shown that this was inaccurate, and that, instead of two claws, it should have been one claw and a pad. Moreover, he is not speaking exclusively of this particular species, but of sawflies in general, so that the species he had before him is not easily to be discovered. At all events, it is certain that the plates, especially the enlarged figures, are by no means accurate.

De Geer's description is excellent; he merely states, as regards the position of the larvæ, that they have a habit of keeping the end of the body curved round underneath. He corrects Réaumur's statement as to the claws of the thoracic legs. His figures are not very happy, although recognizable.

Bouché's observations are accurate and his descriptions clear. Brischke has also some points of difference in his description, but these can be easily accounted for as the effect of local variation or race: he says the stigmata were black; I observed them to be white, with two black spots at the sides; he gives the colour of the head after the last moult as "grünlich oder hellbraun"; I always found it orange, the same as all other describers. He also states that at the last change of skin the black spot on the anal valve disappeared; I observed the contrary with my larvæ. He also says, in contradiction to Réaumur and Rösel, but in accordance with Bouché and myself, that the larva curls the tail underneath. He makes a remarkable observation respecting the little knobs immediately after moulting; he says that they then have the appearance of large gray bladders, with numerous black points on them; and only gradually assume their true appearance. He has also distinctly observed two generations.

In the description of this species in my 'Schadelijke Tuininsecten,' written before I had had an opportunity of observing it myself, I have repeated the mistakes made by Rösel.

I have not reared any parasites from Hylotoma Rosæ.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

September 4, 1865.—FREDERICK SMITH, Esq., V.-P., in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—'The Transactions of the Linnean Society,' vol. xxv., part 1; presented by the Society. 'Bulletin de l'Academie Royale des Sciences, &c., de Belgique,' 2e série, t. xviii., xix.; by the Academy. 'Proceedings of the Boston Society of Natural History,' vol. ix. (part); by the Society. 'Annals of the Lyceum of Natural History of New York,' vol. viii., Nos. 1, 2, 3; by the Lyceum. 'Monographs of the Diptera of North America,' part 2, by Loew and Osten-Sacken; by the Smithsonian Institution. 'Notes on Humble Bees,' and 'Notes on the Leaf-cutting Bee,' by F. W. Putnam; by the Author. 'The Humble Bees of New England and their Parasites,' by A. S. Packard, jun.; by the Author. 'Remarks on some Characteristics of the Insect Fauna of the White Mountains, New Hampshire,' by S. H. Scudder; by the Author. 'On the Hymenoptera of Cuba,' by E. T. Cresson; by the Author. 'Catalogus specierum generis Scolia,' part 2, by H. de Saussure and J. Sichel; by the Authors. 'Stettiner Entomologische Zeitung,' 1865, Nos. 7—9; by the Entomological Society of Stettin. 'Notice sur John Curtis' and 'Rectifications de la Nomenclature de plusieurs Espèces de Phasmides recemment décrites,' by J. O. Westwood; by the Author. 'The Zoologist' for September; by the Editor. 'The Entomologist's Monthly Magazine' for September; by the Editors.

The addition, by purchase, of the 128th livr. of Duval, Migneaux et Fairmaire, 'Genera des Coléoptères d'Europe,' was also announced.

Election of Members.

Herr L. W. Schaufuss, of Dresden, was ballotted for and elected a Foreign Member. The Rev. Sir C. R. Lighton, Bart., and H. T. Wood, Esq., were severally ballotted for and elected Annual Subscribers.

Exhibitions, &c.

Mr. Bond exhibited an andromorphous female and a gynæcomorphous male of Fidonia atomaria, thus showing each sex in the garb of the other: coupling this with the exhibition at the previous Meeting of the andromorphous female of Fidonia piniaria (Zool. 9743), it seemed not unlikely that this peculiar form of variation might be found to run through all the Fidoniæ.

Mr. Bond also exhibited two specimens of Gonepteryx Rhamni, one of which, a male, had a broad stripe along the costa of the left anterior wing of the pale colour peculiar to the female, whilst the other, a female, had large patches of the right anterior wing of the deep colour peculiar to the male: he regarded these as simple varieties, and not as cases of gynandromorphism or of the union or blending together of the two sexes in the same individual.

Mr. Bond also exhibited a variety of Ennychia anguinalis, having a broad patchy whitish marginal band on all the wings, external to the usual narrow white fascia.

Mr. W. F. Kirby exhibited a dwarf male specimen of Polyommatus Icarus (Alexis) measuring only 8½ lines in expanse of wings. This pigmy was captured by Mr. Kirby about the 20th of July last at the salt marsh at Hove, near Brighton, and except in its diminutive size did not present any variation from the ordinary form of the insect, which was then very common in that locality.

Mr. Stainton exhibited a highly-magnified coloured drawing of the larva of Laverna subbistrigella, together with pods of Epilobium montanum in which the larvæ had fed, and which had, in consequence, a somewhat stunted and deformed growth: the habit of the insect was discovered at Wiesbaden, and Mr. Barrett had this year detected the larvæ at Haslemere, where the imago had previously been captured.

Mr Stainton (on behalf of Mr. Dorville) exhibited a specimen of Caradrina cubicularis having a number of red Acari symmetrically arranged upon its wings.

Mr. Stainton mentioned that he had this year noticed an unusual abundance of Chelifers on the legs of house-flies; the natural place for Chelifers would seem to be amongst vegetation, and Dr. Hagen was of opinion that they attached themselves to flies only for the purpose of locomotion; with this he could not agree, for the Chelifer, according to his observations, never quitted a fly to which it once attached itself, and the fly was powerless to get rid of it. On one occasion he had seen a fly with three Chelifers on one of its legs.

Mr. M‘Lachlan exhibited both sexes of Æshna borealis (*Zetterstedt*), taken by him at Rannoch in June last. This dragon-fly was previously known as British by a single example only, captured many years since in Scotland by Mr. Wilson, and now in the collection of De Selys Longchamps.

Mr. M‘Lachlan also exhibited Sialis fuliginosa (*Pictet*, *Brauer*), a species new to Britain, and taken at Rannoch. There were but two European species of this genus, and both had now occurred in this country.

Mr. M‘Lachlan also exhibited two new British Trichoptera; one, a Rhyacophila, from the neighbourhood of Edinburgh, allied to, if not identical with, R. ferruginea (*Hagen*); the other a Stenophylax, from Rannoch, for which he proposed the name of S. infumatus.

Mr. S. Stevens exhibited a box of Coleoptera, part of a collection made in Damaraland by the well-known traveller Mr. Andersson; amongst them were a Phryssoma, a Manticora (latipennis?), several species of Goliathus, G. Burkei, G. Layardi, and an Eudicella, *n. sp.*, allied to E. Smithii.

Prof. Westwood gave an account of a visit to the Exhibition of Insects and Insect-products, which was opened at Paris on the 15th of August last. He mentioned particularly some bee-hives which were sold for 1f. 25c. each; and an octagonal bar-hive, which was so constructed as to be capable of division into two distinct hives: *à propos* of the silk-products, he mentioned that the silk-merchants were beginning to import Ailanthine as an article of commerce, and that certain experiments had recently been made at Toulouse with a view to test the quality of the Ailanthus wood; the tenacity and density of Ailanthus (as given by three experiments) and of elm and oak (as given by seven experiments) were comparatively as follow:—

	AILANTHUS.	ELM.	OAK.
Tenacity . . .	32·812	24·867	19·743
Density . . .	·713	·604	·751

Prof. Westwood added that he had recently observed one of his full-grown larvæ of Saturnia Cynthia, which had been fed on its natural food, the Ailanthus, had emitted from the anus one or two large drops of fluid: prior to their change to the pupa state larvæ generally expelled as much fœcal matter as possible; but was this fluid discharge to be regarded as part, or an extension, of the same phenomenon? was it the natural habit of the creature, or a symptom of disease?

Mr Stainton referred to Duponchel's account of the larvæ as affected with "une légère diarrhee" when nearly full fed.

Mr. F. Moore had not observed any of his larvæ of Saturnia Cynthia to be similarly affected; and he had fed some of them on Ricinus communis.

The Secretary read the following, communicated by Mr. S. Stone, of Brighthampton, under date of the 2nd of September, 1865: —

"*Scarcity of Wasps.*—The immense falling off in the number of anticipated wasps' nests which has taken place is most extraordinary. I had occasion to remark in the spring on the swarms of queen wasps which made their appearance, and on the unusual number of nests that were then to be found, I myself having observed no less than thirty-five in one day (April 28th), but one after another became deserted, some in a few days after their commencement, others at periods more distant, till all had become tenantless, none having attained to a size larger than about that of an orange. I have found during the season sixty-one nests, but at the present time only two of the number are progressing; the others I added, as fast as they became deserted, to my collection. The two above mentioned I removed some time ago to the interior of a warm room in a house I have used for the purpose of rearing wasps and observing their habits for some years past, where the work is at present being carried on; but I am in daily expectation of seeing the insects succumb to disease, as was the [illegible]e with two other colonies I previously had at work in the same room: all seemed to be going on well with them till the 5th of August, when a sudden diminution in the number of workers, and a cessation from work, took place in both nests simultaneously; and on examining them two or three days afterwards I found that nearly all the workers had disappeared, and that all the larvæ had sickened, died, and were in an advanced state of decomposition, having turned perfectly black: and this was also the case with very many of those that had spun themselves up and changed into pupæ; whence I infer that an epidemic more fatal in its character than that of last year, earlier in its appearance, and far more wide-spread, attacked the family of social wasps, and has resulted in their almost total destruction. That earwigs (which swarm to an extent I never before witnessed), wood-lice and ants have been in some degree instrumental in causing the destruction of nests, especially during the earlier periods of their formation, I have had abundant opportunities of proving; still that would hardly account for the universal destruction that has occurred. I did not find that more nests became deserted during the short periods of rain we occasionally had than during periods of the most charming and delightful weather, or that nests situated in moist ground fared worse than those in very dry situations."

Mr. Baly mentioned that, contrary to what seemed to be the general experience, wasps were this autumn abundant near Aberdeen.

Mr. F. Smith had spent the month of August at Bournemouth, and had not seen a single wasp, whereas in the same month of the previous year he could have obtained in the same locality twenty or thirty nests any morning: he thought it not improbable that wasps were actually *starved* to death during a long continuance of wet weather; this, however, would not account for their present disappearance.

Prof. Westwood said that one of his correspondents had lately inquired of him whether earwigs were injurious to bees; Mr. Stone's communication answered the question with respect to wasps, and he had no doubt that earwigs, which were this year unprecedentedly numerous, were equally injurious to bees, penetrating the hives and consuming the larvæ.

Mr. Bond read, from the 'Standard' newspaper of the 2nd of September, the following extract from the letter of a correspondent at Coburg:—

"In the centre of the town stands the large and handsome church of St. Maurice, built in the early part of the fifteenth century, and having two towers, one unfinished, as is often the case (and history gives the reason here, that Tully, in the Thirty Years' War, carried off the money applicable to the purpose), the other reaching to a total height of 263 feet, of which the uppermost part is placed over an open belfry, and has a spiral termination of wood, covered with copper, out of which rises a long spindle, at the top of which is a golden ball, and above that again is the weather-cock. Shortly before five o'clock in the afternoon of the 28th of August, smoke was seen to issue from the small spire above the belfry. The news soon spread that the church-tower was on fire; the fire alarm was given, according to the German fashion, from the church-tower itself, the brigade of volunteer firemen donned their helmets, and rushed in all haste from their ordinary vocations to the post of danger, an express messenger was sent to the burgomaster, who was gone to a neighbouring village, and the whole population turned out to see the curl of smoke gradually ascending and dissappearing in the clear blue sky above. Nor was their anxiety for the old church without cause; twice before in its history, once in 1807 and again in 1812, had the lightning set this very tower on fire. But whence now could the fire have come? The spot whence the smoke issued was far above any place in the tower ever used or visited; the day was bright and clear, and there had not been, and was not, any sign of a storm; the heat of the sun, it is true, was excessive, but no one could remember an instance where fire had been kindled by the lord of day. Whilst the spectators eagerly discussed these questions, hundreds of eyes were watching the ascent of the firemen from point to point until they reached the belfry under the spire; a scaffold was there hastily constructed, upon which a ladder was raised and the cause and seat of the fire closely investigated. Sundry motions of the fireman on the ladder on high excited no little mystery below, for he seemed to be engaged in conflict with wasps or other warlike insects. The news soon sped to earth that the cause of all this commotion was millions of ants which had settled in countless numbers upon the steeple; indeed, all over the upper part of the tower: and as they rose to perform their gyrations in the air had created that appearance of smoke which could not be detected as a counterfeit from below. The mysterious motions of the man on the ladder were now explained. They were his attempts to beat off his insectile companions from himself, upon whom they were quite as disposed to settle as upon the church steeple itself. I am not sufficiently acquainted with insect life to be able to speak scientifically as to the genus of ant that suceeeded in so distinguishing itself; but having seen several that were brought down from the spire, I am able to say that they were an ant of a reddish colour, slightly larger than our common black ant, and of course furnished with wings."

Mr. Wormald had seen something very similar at St. Albans on the 26th of August, when a swarm of small black ants presented the appearance of smoke issuing from the Abbey.

Prof. Westwood directed attention to the remarkable form of Pteratomus, a Hymenopterous insect, as figured by M. Packard in his paper "On the Humble Bees of New England and their Parasites;" the anterior wings were divided or cleft like those of a plume-moth (Pterophorus).

New Part of 'Transactions.'

A new Part of the 'Transactions' (Tr. Ent. Soc., 3rd Series, vol. iii. Part 2), containing Mr. Pascoe's "Longicornia Malayana" (continuation), and being the third Part published during the present year, was on the table.—*J. W. D.*

Popular Names in Natural History.—May I be allowed to draw Mr. Alston's attention to the fact that the German word for "willow" is "weide," and that in some parts of Switzerland the same is pronounced "wiide," both of which are evidently much more closely allied to "wheetie" and "whey" (as used in Lanarkshire for the willow wren), than the expressions mentioned (Zool. 9709). Perhaps the readers of the 'Zoologist' will pardon me if I take this opportunity to draw their attention to a subject which is often abused; I mean popular names. But, before I proceed, I wish it to be clearly understood that I do not for one moment intend to speak in favour of the so-called "popular names," as given by some, for instance, to the different species of butterflies. To plead for such as "gate-keeper," "Queen of Spain," &c., would be simply absurd; but I allude to those quaint and often striking expressions for certain insects which are to be found here and there in the idioms of sundry nations; they are often full of thought and precise meaning, and I have no doubt that if this mine is properly worked in this country it will amply repay the little trouble it gives, especially if extended to the comparison of the same word in distinct but kindred languages. An interesting instance of this kind was given by Mr. E. C. Rye in No. 15 of the 'Entomologist's Monthly Magazine' (p. 52), and I cannot but think that a little attention to the subject will soon produce numbers of similar facts. If some of our working entomologists and general observers who cross the land in its length and breadth will kindly bear in mind what is said above, and note down such names as they happen to hear, including other bits of entomological folk-lore, as proverbs, sayings, stanzas, &c., about any insect, it might be useful to see them recorded in the pages of the 'Zoologist;' or, if not considered valuable enough, I shall be glad to receive any direct communications, for it cannot be contradicted that the tendency of our time is to level all those provincial peculiarities of the language; and to save what may still be saved is the purpose of this note.—*Albert Müller; 2, Camden Villas, Jasmine Grove, Penge, S.E., August* 31, 1865.

A Male Chimpanzee at the Zoological Gardens.—The Zoological Society has just received a male chimpanzee. The introduction of the stranger to the female in the gardens was an amusing fact. The two creatures rushed into each other's arms, like stage-lovers. They kissed each other; then the male chimpanzee patted the female's face, danced round her, took her round the waist, as if he was going to waltz, when they expressed their joy by dancing and howling in ludicrous concert.—*Athenæum.*

Ornithological Notes from Shetland. By H. L. Saxby, M.D.

(Continued from page 9591).

April, 1865.

Brambling.—On the 8th of April we were visited by a few bramblings; the wind was blowing heavily and varying between N.W. and S.W. On the 28th some large flocks arrived with N.E. wind and snow. On comparing specimens shot in April with those shot in autumn the more brilliant colours of the former are very apparent.

Hooper.—On the 11th (wind blowing strongly from N.) some hoopers rested in the Loch of Cliff, and others were seen at frequent intervals during the remaining part of the month.

Teal.—Teal in large flocks visited the Loch of Watley on the 11th. I have seldom observed them there in such large numbers.

Goldeneye and Tufted Duck.—Goldeneyes and tufted ducks increased in number during the first two weeks in April.

Bartailed Godwit.—The bartailed godwit is quite rare in Unst, and also, I believe, in other parts of Shetland. One appeared at Baltasound on the 18th (wind N.E.).

Wheatear.—The first wheatear, a male, also arrived on the 18th.

Ring Ouzel.—On the 22nd a ring ouzel visited the garden. It appeared to be an adult male, but was so shy that only an occasional glimpse of it could be obtained. The day was bright and calm, but on the preceding day there had been a light, steady breeze from S.W.

Lapwing.—Lapwings were said to be laying very early in the month, but I saw no eggs before the 23rd.

Guillemot.—The full number of guillemots has now arrived, and long rows of them may be observed sitting up on the high rocks. A specimen shot at Baltasound on the 20th, several miles from the breeding station, had the front of the neck entirely white, but all that were shot under the cliffs at Burrafirth four days later were in perfect summer plumage.

Ringed Guillemot.—On the 24th I shot several specimens of the ringed guillemot at Burrafirth, from among those of the common kind. This was accidental, it being of course impossible to distinguish the one from the other as they fly out of the cliffs. Even when a telescope shows one sitting upon the rocks, it is sure to be lost among the crowd as soon as it takes wing.

Shag.—Nearly all the old shags have paired and are to be seen sitting up in their nesting-places. The brilliant metallic-looking green and bronze of their plumage presents a superb appearance in the sunlight.

Raven.—Many ravens are now sitting, but some have already hatched. Although the amount of damage they commit is still quite sufficient to raise every hand against them, I am told that in this neighbourhood they are not so mischievous as they were some years ago. At that time their cunning and voracity had caused such serious losses among the live stock, that Dr. Edmondston devised a very effectual method of checking them, and accordingly destroyed a whole family, by poisoning the carcase of a lamb and lowering it over the face of a cliff, near the nest of one very old and exceedingly wary couple. The immediate and almost entire cessation of the nuisance proved that his suspicions as to the ringleaders had not been misplaced. Young pairs are less destructive, and being less cunning are far easier to shoot, but the old ones time their visits to the farm-yards so accurately and exercise such caution that to kill one is considered quite a feat. Occasionally, however, their prudence overreaches its object. A friend of mine, wishing to destroy one of these birds, set a rat-gin near its haunts and covered it carefully with fine mould, leaving nothing but the bait exposed. But the bird was not to be thus deceived; he would walk round the trap, and even hover above it as though about to make the fatal pounce, the demonstration invariably resulting in his retiring to a small hillock close at hand, from which he seemed to fancy he could eye the tempting morsel in safety. This state of things lasted for two days, when my friend slyly buried the trap in the hillock, neatly covering it with moss, but leaving the bait in its old place. Scarcely had he left the spot when the raven came circling over the bait, and immediately afterwards, alighting upon the hillock to reconnoitre, was instantly caught by the feet.

Hooded Crow.—I observed some hooded crows repairing their nests early in April. Like the raven, they will occupy the same nest for many years in succession, if not disturbed. One pair, which is easily known by the broken leg of the male, has built regularly among the rocks at Swinee-ness for upwards of twenty years, not always, however, selecting the same spot for their nest, in consequence of the frequency with which it has been robbed.

Longtailed Duck.—Among the longtailed ducks there seems to be a large proportion of males this season. Sometimes in calm weather pairs may be observed far out at sea flying in a northerly direction.

Scaup.—Pairs of scaups are still about the voes, and a few may be observed in the fresh-water lochs.

Turnstone and Purple Sandpiper.—Turnstones and purple sandpipers are abundant upon all parts of the coast, and as yet show no signs of departure. The plumage of the former species has now become considerably faded.

Starling.—Flocks of starlings are breaking up, and pairs may be seen examining holes and crevices, as if with the intention of soon commencing their nests. One pair has, to my own knowledge, occupied the same hole for eight successive years.

Ringed Plover and Dunlin.—Ringed plovers and dunlins are now selecting their mates, thus causing the rapid dispersion of the small parties which returned to their breeding-grounds last month.

MAY, 1865.

Common and Blackheaded Gulls.—Common and blackheaded gulls are reappearing in the neighbourhood of their breeding-grounds.

Wheatear.—On the 2nd of May I first observed wheatears building. The nests of this species vary considerably, not only in appearance, but also in the nature of the materials of which they are composed. Every one that I have seen has contained feathers. A nest found in a garden-wall was constructed as follows: first there was a large mass of fibrous roots, moss, dead weeds and hay, loosely spread upon the bottom of the crevice by way of a foundation; upon this was a cup-shaped layer of smaller fibrous roots, and again one of fine roots, intermixed with cow's-hair, upon which was another of similar materials, with the addition of about a third part of hay. Upon this there was a distinct carefully-wrought lining in three layers, the first consisting of pieces of twine and carpet-worsted, the second of a thick mass of cow's-hair, and the third of a large quantity of small feathers. I have often seen the male bird carrying the materials, but usually he flits restlessly hither and thither, watching his more industrious mate, and occasionally rising upon wing to utter his short but cheerful song. I often see these birds in trees, and used to think that this habit was more common with young birds, but I imagine that the greater abundance of the latter led me into error. Both old and young seem to prefer the topmost twigs. Sometimes the nest is situated in a hole, in the face of a low peat-cutting, never very far back, and sometimes in a crevice upon the sun-dried surface of the peat-moor itself. Often when approaching a nest in the former situation I have seen the sitting bird fly out hurriedly while I was yet many yards distant, and, being on the level ground above, of course out of sight. In these cases it is probable that the vibration caused by my footsteps was the cause of alarm.

Brambling.—On the 2nd of May large numbers of bramblings arrived with a strong S.W. wind.

Purple Sandpiper.—Numerous parties of purple sandpipers are still to be observed among the rocks.

Whimbrel.—Whimbrels have become very numerous during the last few weeks, and are to be heard, if not seen, almost everywhere.

Skua and Richardson's Skua.—I am not sure when these birds arrived, but I saw one of each for the first time this season when I visited Burrafirth on the 3rd of May.

Manx Shearwater.—Manx shearwaters were found in their burrows on the 3rd.

Black Guillemot.—Black guillemots in gray or mottled plumage are still numerous.

Lesser Blackbacked Gull.—Lesser blackbacked gulls were in pairs very early in the month.

Golden Plover.—I saw the first four golden plover's eggs on the 4th, but they must have been laid some considerable time previously, as they were nearly ready for hatching.

Raven.—On the 4th a raven's nest in the Keene contained young ones nearly fledged.

Ringed Plover.—Ringed plovers are hatching. Between the 12th and 16th I found several nests, some containing fresh eggs and others eggs within a few hours of hatching. Although all the nests were in perfectly dry situations, there was always water near at hand. It is very difficult indeed to surprise the ringed plover upon its nest, even when the spot has been carefully marked.

Twite.—Twites' eggs were found very early in the month. During the summer there is scarcely the channel of a mountain burn which does not contain at least one nest. These birds commonly sit very closely, so that it would be difficult to find them in the above situation were it not for their inability to resist flying out when they feel the shock of a pair of feet as the intruder jumps across the burn.

July, 1865.

Golden Plover and Snipe.—On the evening of the 3rd of July I started from Lerwick on foot, being too much pressed for time to wait for the sailing-packet, and from that time until noon next day golden plovers were never out of hearing, seldom out of sight, except when I was crossing two narrow sounds which lay in my way. All night long the plovers were in full activity, whistling all over the moors and frequently accompanying me for several hundred yards. By imitating their call, I even caused them to alight in the dusty road, and so little fear did they show that when my near approach made them take wing they merely flew for a very short distance, and then ran in front of me as before. But the moment I ceased to answer their whistle and advanced silently, they were sure to rise hurriedly with a peculiar note of alarm, seldom venturing near me again unless I repeated the signal in the same manner as before. A plover dashing past at full speed will often pause and alight on hearing a tolerably accurate imitation of its note, but this seldom takes place when the birds are in flocks or flying high. When I reached Baltasound (about fifty-five miles distant from Lerwick by the road) plovers were still to be seen in every direction, nor did I observe that their number was any greater during the day than in the night. When do plovers sleep? I have been upon the hills at all hours, and at all seasons, and have almost invariably found these wakeful birds upon the alert, not only close at hand, but whistling far away where no human being could have been near them. Since April the weather has been so unusually dry that upon the moors there is scarcely a burn or even a stagnant pool to be seen. I saw no snipe in the day-time, but at night I heard them in many places. When I was aware of the vicinity of a stream I proceeded cautiously, and in most cases with the result of stealing unobserved upon a snipe, feeding near its margin. Occasionally there were several together, and the herbage was so short that their outline was distinctly visible, although the night was cloudy and unusually dark for the time of year. On my first observing them they were always walking slowly, now and then stopping to touch the ground with their bills, but the moment they caught sight of me they stopped abruptly and squatted closely, with the bill sloping downwards and the head usually drawn back.

Curlew, Whimbrel and Common Gull.—Curlews and whimbrels were also upon the alert, having, I suppose, eggs or young in the neighbourhood, otherwise they would have been less bold. Occasionally they would come dashing over my head, uttering loud cries, wild enough at any time, but sounding most unearthly when mingled with the yelping of the common gull and the mysterious drumming and clicking of the snipe upon the desolate peat-moors at midnight. There were not many common gulls, and, so far as could be ascertained, they were not upon the watch, but only approached me when I happened to intrude in their haunts.

Wild Duck.—Early on the morning of the 4th I came rather suddenly near a female wild duck and two young ones, which were sitting among the stones at the edge of a rather extensive loch. The young ones had apparently been hatched about three weeks or a month, and rushed off into the water, with extraordinary speed, considering the broken nature of the ground. The old bird, fluttering and tumbling into the water, went splashing along with wings and feet quite in a different direction, which happening to be the one in which I was going, I followed at leisure. When the young ones had proceeded about eighty yards from the land they dived, and I saw them no more, but the old bird, after alternately flapping along the surface, and, upon my approach, rising for about a yard and flying steadily for a short distance, suddenly rose for about ten feet, quacked loudly two or three times, and made a wide sweep to the spot from which she had been disturbed.

Wheatear.—Well-fledged young wheatears were very abundant early in July.

Great Northern Diver.—About the end of June, Mr. W. Hamilton. observing three northern divers near the shore at Bressay, concealed himself behind a boat, and, as they neared him, shot two. One was an adult in perfect summer plumage, the other a young one, about six inches less in length. The one which escaped was also evidently a first year's bird.

Land Rails.—Land rails are still to be heard, but chiefly at night. I have just heard of one which was shot in a turnip field last November. In the Catalogue of the Birds of Orkney by Dr. Baikie and Mr. Heddle, this species is mentioned as probably remaining there all the year, several having been dug out of old turf-dykes during winter. On the 14th a mower accidentally laid bare a land rail's nest, containing ten eggs almost ready for hatching, but upon my reaching the spot shortly afterwards the bird was nowhere in sight, although she had been seen there less than half a minute previously. I remained for about five minutes examining the nest and eggs, the man who accompanied me standing all the while upon a handful of hay, which he had thrown there to mark the place, but to our surprise, the moment he began to move away the bird flew out from between his feet, and went down into the standing grass about twenty yards distant. The nest consisted of a nearly circular hollow, three inches deep in the centre, and carefully lined to an inch in thickness with fragments of weeds and small pieces of moss. The cavity measured seven inches across.

Sky Lark.—Although there are plenty of well-fledged sky larks in the fields, eggs are still to be met with. Two nests, each containing four nearly fresh eggs were found on the 14th. I often watch sky larks on the nest, and with a little care frequently succeed so far in gaining their confidence that they will allow me to stroke them upon the head and back while they are sitting.

Redstart and Swallow.—On the 16th (wind S.S.W.) a redstart, either an old female or a young bird of the year, and two swallows, made their appearance at Halligarth. Both species still remain here, the former keeping well concealed among the bushes, the latter hawking near the house and garden, occasionally, with their gentle notes, reminding one of Old England.

Arctic Tern.—Arctic terns are pretty numerous. Very few have hatched yet, but I saw the first young one, about three days old, on the 22nd. On fine summer evenings whole parties of these beautiful birds may occasionally be seen skimming above the meadows in pursuit of winged insects.

Snipe.—On the 25th, while crossing a piece of damp ground several hundred feet above the sea level, I found the nest of a snipe. It was situated in the heart of a tuft of long coarse grass, and contained one whole egg and some broken shells, which bore distinct marks of having been hatched a few days previously. On opening the whole egg I found, as I expected, a dead, but perfectly formed chick. Having very frequently observed similar instances among the waders, I have been led to imagine that those young ones which are hatched first will sometimes, in their impatience to see the world, entice the parent bird from the nest, thus leaving to perish any eggs which may remain unhatched.

Guillemot.—A young guillemot, caught below the cliffs a few days ago, is fully feathered except upon the top of the head, and is about the size of a little auk. It is already very tame and runs about with great activity. Always when running, and most commonly when standing, it rests upon the toes, not upon the tarsus.

Lesser Blackbacked Gull.—Most of the lesser blackbacked gulls have hatched, but a few still have fresh eggs. The latter are most likely the property of those birds which have already been robbed, for they usually occur in those situations which are most easily accessible to egg-gatherers.

Twite.—On the 25th I found a twite's nest upon the high top of Vallafiel. The eggs were, to all appearance, within a week of hatching. The nest was very snugly placed between the perpendicular face of a large stone and the tall surrounding heather.

Heron.—Great numbers of herons have lately appeared, but I observe very few adults among them.

Crane.—Two of these rare birds have just been killed here: I will add particulars in a postscript.

HENRY L. SAXBY.

Baltasound, Shetland, July 31, 1865.

Postscript.—In the preceding communication I mentioned the occurrence of the crane (*Grus cinerea*) in the island of Unst, at the same time proposing to give some further particulars in my next. To those of my readers who are acquainted with the crane in its wild state my remarks may perhaps appear trivial, but here I would observe that if the 'Zoologist' is to continue to be what it has been for many years, the most complete record in existence of the habits of birds, not merely a dry list of captures, no fact which contributes even in a small degree to the great end in view can be deemed unworthy of notice. Moreover, it seems only just that he who is instrumental in causing the scarcity of a species should also make the only amends in his power to his brother naturalists, by allowing them to avail themselves to the utmost of every advantage, however slight, which, as a rule, he has gained by accident alone.

One evening about the middle of last June, four large birds, uttering loud cries, which were described as resembling those of the wild swan, were observed flying across Baltasound in a southerly direction, and, slowly descending, they became lost to view against the hills. Some days afterwards a large bird, said to be one of the four, was shot at Haroldswick, in a meadow near the sea, and brought to Mr. Thomas Edmondston, of Buness, where it was identified as a specimen of the crane, and soon afterwards the skin was sent to Edinburgh to be stuffed. No red colour was observed upon the top of the head, but as that fades soon after death it might easily have been overlooked. From all that I can hear, the bird seems to have been in the plumage of its second year. The measurements, which were taken before skinning, have been given to me as follows:—

Length, from middle claw to tip of bill . .	4 feet 10 inches.
Length, from tail to tip of bill	3 „ 10 „
Expanse of wings	6 „ 9 „
Bill to gape	4½ „

On my return to Shetland, early in July, I was informed that one of these birds was supposed to be still remaining in the island; but nothing further was ascertained until the 12th, when it was observed near the Loch of Cliff, sometimes upon the wing, but more frequently walking about in the corn-fields. The last time it was seen that day it was standing in the little holm, far out of shot from the shore. Next day diligent search was made for it without the smallest success; but a man who lives near the deserted village of Cliff assured us that the bird had of late been almost constantly seen in that neighbourhood, and his description convinced me that it was not a heron—a bird which here, as elsewhere, is often called the crane. He said that it was at least as high as a pony, that it never went very near the water, but preferred the meadows and the fields of young corn, in which it walked about with slow steps, now and then "picking at the ground, for all the world like a hen." On the 17th, as I was crossing the hills above Cliff, the man ran to me in great haste with the news that the crane had just gone down near the loch, upon the steep slope which faces the north. Wishing to make quite sure as to the species before going home for a gun, I crept among the long grass to the top of the hill and peeped over, but as the sun dazzled me, the bird rose before I was aware of its presence. It got up, with a low guttural cry, sailed off with outstretched neck towards the loch, then turned facing the wind, and soon afterwards alighted upon the same slope, some three hundred yards distant from where it had just risen. As it flew, the ends of the quills could be seen widely separated, giving the wings a peculiar fringed-like appearance. Very carefully withdrawing from sight, I hastened to Baltasound, about a couple of miles distant, for a gun; but, as is usual in such cases, a party of visitors had called during my absence, and carried off both guns and ammunition. More than an hour was spent in searching for another, but at last I succeeded in procuring a tremendously heavy old single-barrel, a little loose powder and some rabbit-shot; and thus provided I hurried back. On my arrival the bird was nowhere to be seen, and I was about to leave, when it came sailing back, in a sneaking sort of way, under shelter of the hill, and went down near the old spot. I got nearer, without being observed, and was just wondering how to proceed next, the last sheltering patch of weeds having been reached, and the bird still far distant, when the latter, which until then had been walking slowly about with neck retracted and shoulders humped,—exactly in the position chosen by Yarrell for his figure of the heron,—suddenly stretched its neck to the full extent, ran several steps, and then took wing, uttering the same peculiar croaking sound as before. I fired instantly, but seeing that no serious effect was produced, threw myself flat among the long grass, and the bird, changing its course, flew directly over me, and so close that I could distinctly see its eye. Then, while I was reloading, it took a long flight, circling about in various directions, sometimes sweeping close to the ground, as if about to alight, and then rising so high in the air as to be almost out of sight. At length it settled upon the opposite side of the loch, whither I followed it, and was nearly within shot, when a sheep-dog caught sight of it and drove it up. Then for upwards of three hours I continued the pursuit, the bird keeping an exceedingly sharp look out, sometimes alighting in corn-fields or moist places, occasionally walking about and feeding, but always flying off for half a mile or more as I approached. Then I lost sight of it for nearly an hour, and was far on my way home, when I caught a momentary glimpse of its wings as it went down near the old place. It remained there for a few minutes, and then went off to a field surrounded by a rough wall, two feet high, where it remained feeding so contentedly that I made sure of success at last. Crawling among the stones and long grass I managed to gain a cross-wall, which would have exactly answered my purpose, but, at the very moment when I was passing the only gap, the bird, raising its long neck, caught sight of me, and was off in an instant. Having watched it fairly out of sight, I went home greatly disappointed.

Next morning, being provided with my own gun, I went again in pursuit, this time accompanied by my brother-in-law, Mr. Thomas Edmondston, jun. Two riders were seen making for the very spot where we expected to find the bird; but, after a smart race, we intercepted them just in time, and, almost breathless with anxiety and haste, we peeped over the brow of the hill, very cautiously indeed, for the extreme wariness of the bird was by that time well known; then we rose to our knees, next to our feet, but not a feather was to be seen. We were about to descend the hill, and had already proceeded some steps, when, catching sight of the bird on a level place at the foot of the hill, and about three hundred yards distant from us, we immediately dropped behind a friendly hillock, and, making a wide sweep inland, returned to the top of the hill, as nearly as possible above the desired spot. Reckoning that the bird would be far out of shot from the nearest concealment, we agreed that our only chance was to creep along the ground as far as possible, and then run in at once. This we did, and as the bird got up we ventured a very long shot with B B as it flew towards the loch. On receiving the shot it sailed steadily for a few seconds, and then, dropping upon its feet in shallow water, ran for the land so rapidly that we could scarcely overtake it, and even then the furious thrusts which it delivered with its bill rendered its despatch a matter of no small difficulty. It was only then that we became aware that we had both fired, the two shots having occurred so precisely at the same moment that only one report was perceptible. In consequence of the great size of the bird neither of us could carry it alone without injuring it as a specimen; therefore we bound it lengthwise with our handkerchiefs to the longest gun, and thus brought it in triumph home.

During the pursuit on the previous day I noticed that the bird never rose without first running several steps, and that as soon as it became aware of danger it never failed to utter the peculiar guttural cry already mentioned. It rarely circled immediately before alighting, but, with outstretched motionless wings, sailed gradually closer to the ground and dropped rather suddenly. Then it would pause to tuck its large wings comfortably away, very soon afterwards beginning to walk about slowly in the position already described, occasionally stopping to raise its head and look around, or to pick up something from among the grass. On taking wing, and generally when descending previously to alighting, it stretched out the neck in a line with the body; but when rising in full flight it kept the neck retracted and the head withdrawn to the shoulders. When it was high in the air, and seemed bent upon a long flight, the wings were flapped slowly, but at regular intervals, rather longer than I have observed with the heron; at other times the wings were usually kept fully expanded, and only moved occasionally. The flight, though apparently heavy, was nevertheless very rapid, and, as far as I could observe, the bird preferred rising head to wind; indeed, even upon the ground, it nearly always exactly faced the quarter from which the wind was blowing.

On skinning the specimen, it was evident that the contents of both of our barrels had been well directed; one wing was broken, and other wounds were numerous; but I was surprised to find several shot lying loose beneath the skin of the back. Although the bird was evidently immature the tendons of the wings and legs were exceedingly strong, and in some situations even partly ossified. The stomach, which was large and very muscular, was filled with large black slugs and pieces of stone (principally quartz), some of them of considerable size, measuring about half an inch square. Most of the feathers composing the under wing-coverts presented a very peculiar appearance, large patches upon them being covered with what I take to be the ova of some kind of parasite, but not being certain upon that point I enclose some of the feathers for your opinion. The nature of the food probably accounts for the bird's preference for the north, or shady side of the hills.

Unlike the herons, the crane has a small neck, consequently it is necessary to slit the skin in order to clean the skull.

I append a description of the specimen, not being able to find a similar one elsewhere.

Length, from middle claw to tip of bill	4 feet	8 inches.
Length, from tail to tip of bill	3 „	8	„
Expanse of wings	6 „	7	„
Wing, from carpal joint to tip	1 „	9	„
Bill, from front to tip		3⅞	„
Bill to gape		4¼	„
Tarsus		9	„
Middle toe and its claw		3⅞	„

Sex male.

Bill horn-colour, tinged with green, slightly darker along the ridge and palest at the tip. (After drying the whole of the bill becomes dark reddish brown.)

Iris rich golden yellow, gradually becoming darker towards the pupil.

Head and Neck.—Crown and fore part of the head dull crimson, with scanty bristle-like feathers of very dark bluish gray; the feathers upon the lore similar in appearance but closely set; from the eye to the occiput an elongated patch of dirty white, the feathers of the occiput itself somewhat lengthened and pointed, dusky bluish gray, with their concealed portion dirty white; chin, throat, and upper two-thirds of front of neck dull lead-gray, the shafts of most of the feathers slightly darker; back of neck rather paler than the front, and very obscurely mottled with light brown; upon the sides of the neck the colours are still paler; lower third of front of neck pale grayish brown, the shaft lines of feathers considerably darker.

Upper surface of body.—Upper scapulars and upper half of back dull lead-gray, each feather with a darker shaft and brownish tip; lower scapulars similar in colour, but darker, especially towards the tips; lower half of the back with less brown than the upper half; upper tail-coverts very dark bluish gray at the tips, their concealed portion brownish gray.

Tail.—Shafts of the feathers white, except at the tips; in other respects these feathers resemble the upper coverts, but the dark colour occupying less space causes a lighter irregular transverse band.

Wings.—Third quill slightly longer than the second and longest in the wing. Lesser coverts lead-gray, tinged in some parts with pale brown, the shaft lines nearly black; greater coverts of a browner hue, much elongated, and with the webs disconnected, the concealed portions of the inner ones brownish black; alulæ and primaries black, the latter brownish at the tips; secondaries and tertials black with white shafts and paler at the base, the innermost of the tertials brownish towards the tips. In the closed wing the tertials are longer than the primaries, and the last feathers of the tertiary coverts are longer than the tertials themselves. The long, drooping "plumes" are formed by the greater coverts alone, especially by those nearest to the body, and not by the tertials.

Under surface of body indistinctly mottled with pale brownish gray and pale lead-gray, the shafts darker; at the upper part of the breast a few dirty white feathers are intermixed.

Feet, tarsi, and bare part of tibiæ brownish black, tinged with olive, the under surface of the feet paler; claws black.

HENRY L. SAXBY.

Baltasound, Shetland, August 21, 1865.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from page 9714.)

AUGUST, 1865.

Ringed Dotterell.—August, in Humber Ornithology, may be called the month of the ringed dotterell, as invariably during the first week in this month, or within a few days of that time, the marshes are visited by large flocks of these social and lively little birds, here better known under the provincial name of "black heads," the word "dotterell" being only used to describe the true dotterell (*Charadrius morinellus*). These flocks of ringed plovers are as regular in their time of arrival in the Humber district as are the gray plovers when on their passage northward during the spring migration, by far the greater portion of these latter birds arriving, no matter how backward the season, during the first week in May. I have for years observed that, on this coast, these two birds are truer to a certain date of arrival than any other of the many species of migratory birds which visit the Humber. Like the blackheaded gulls, the ringed dotterells prefer a level and dry piece of fallow land as a resting-place, never keeping long, however, to one spot, and it is not unusual at this season to see hundreds together on the wing, sweeping across the marshes from one favourite resting-ground to another. When thus changing quarters, they skim along near the ground, rising and falling in their flight, and alternately exhibiting the light and dark shades of their plumage, all the time keeping up a constantly-repeated call-note, which, uttered from so many small throats at once, has an extremely pleasing and musical effect,—a certain sweet and wild melody in keeping with the scene: it is one of those familiar sounds which remind us that summer days are nearly over, and the golden autumn has come. All around in the open marsh are—

"The thousand waves of wheat,
That ripple round the lonely grange."

More frequently, however, these yellow fields of grain are laid and tossed about by summer storms into every shape of confusion, bearing no inapt resemblance to a wild and stormy sea: to make the resemblance more perfect still, along the hollows of these storm-tossed waves of grain comes the swift dashing flight and wild musical cry of the little dotterell, or perhaps a group of blackheaded gulls on their way from the distant wolds, slowly beating along, flying dead against the freshening breeze, and almost brushing with their pure white breasts the waving heads of corn. Small flocks of ringed plovers are found on the Humber during the greater part of the year. August, however, is their great month: within a few weeks the greater part of the flocks now in the neighbourhood will have left.

Whimbrel.—On several occasions towards the latter part of the month I have seen flocks of whimbrel pass over this village, generally flying in a south-west direction, and at such an immense height that they looked mere snipe in size. Had it not been for their well-known call-note, constantly repeated as they flew along, it would have been impossible to identify them. But few of these birds visit the Humber district during the autumn months compared with the larger flocks which for a time take up their abode here during the period of the vernal migration.

Lesser Blackbacked Gull.—These gulls are not infrequent on the Humber coast during the present month. I have so far, however, not observed them on this coast at any other period of the year. I saw several of them to-day (August 23rd), both old and young birds, on the flats; in some cases four or five together, generally young birds, the old full-plumaged gulls keeping in pairs. They never in any weather leave the Humber or its flats for the inland district, as is the case with other gulls. This I have observed to be also the case with the great blackbacked gull; during a residence of many years in this parish I never remember seeing one of them on the land side of the Humber embankments. Both species are strictly marine in their habits.

Heron.—Herons are much more frequently met with in the marshes during the autumn than at any other season: I lately saw as many as nine together. The few which remain the winter appear to be all old birds. A party of herons, five, six and sometimes even more in number, have now for many years haunted a certain retired portion of the marshes, returning regularly year after year in the later summer and autumn to fish in the same drains and pools, occasionally changing their fishing-grounds to the Humber flats, where they follow the retiring tide, as it slowly creeps away down the muddy plain, keeping a sharp look out for any small fish left behind in the little salt-water pools. In the inland drains they catch eels and flat-fish; the latter I have sometimes found on the drain-banks, pierced through with one blow of the heron's sharp bill; but in consequence, I should suppose, of the great width of the fish, they find it impossible to bolt it, and are reluctantly compelled to leave it for the carrion crows.

Snipe.—It is not often that snipe visit us so early as they have done this year. I have on several occasions during the month put them up from the drains near the Humber.

Knot.—Some small flocks of knots were seen on the flats on the 28th of August. My informant, an old gunner, got within a short distance of a dozen of them which were feeding on the fore-shore. This is earlier than I ever remember them to have arrived in any previous season.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
September 1, 1865.

Ornithological Notes from Shropshire. By JOHN ROCKE, Esq.

(Continued from p. 9688.)

Great Gray Shrike (Lanius excubitor).—This fine shrike, which stands at the head of the Perchers, or second order of birds, has been frequently met with in this county, generally in the winter, and I am not aware that it has ever been discovered nesting with us. I have a good specimen, killed in Shrewsbury, near the flannel manufactory, and another at Acton Reynold. They differ a good deal in size, as well as in their marking.

Redbacked Shrike (Lanius collurio).—Few of our summer visitants exhibit a more strikingly handsome plumage than the redbacked shrike or butcher bird, and as it is far from uncommon, the same roads and lanes being frequented by the bird almost every season, its beauty is familiar to us. I have known a pair return to the same field, and almost to the same bush, for three or four years in succession, varying little in their dates of arrival. They appear to be more numerous in the neighbourhood of Ludlow than in any other part of the county, and they nest regularly in that district. The eggs are easily obtained; so much so that, as I have not seen any of the parent birds this summer, I fear, as a consequence, they are becoming scarcer.

Spotted Flycatcher (Muscicapa grisola).—This neat and most sociable little bird is common everywhere. The last of our summer migrants, it arrives with a regularity almost inconceivable. Few birds have so little fear of man: the nearer they can approach his dwellings, the greater their confidence appears to be. I have known two broods in succession reared in a summer-house, the nest being placed within two or three inches of the heads of persons who were continually passing in and out.

Pied Flycatcher (Muscicapa atricapilla).—I have seen this pretty little flycatcher several times in the neighbourhood of Downton Castle: the hollow trees by the side of the River Teme seem a favourite locality for their nests, one of which I knew of this summer, and I trust it remained unmolested. The bird has occurred more than once near this place, and a friend of mine took a nest and eggs near Ludlow a few years ago.

Common Dipper (Cinclus aquaticus).—Common on all our rivers and brooks, though, I fear, a heavy persecution has arisen against it, from the mistaken idea that it is a destroyer of the spawn of trout and grayling. Be that as it may, I consider the cheerful song and interesting habits of this neat little bird would well repay any slight diminution of sport that might be caused on that account. I am happy to say they abound on the river, on whose banks I live, and rear their young in peace and safety. The nest, which is generally placed under a bridge or on the river-bank, looking like a shapeless bundle of moss, is in reality, when closely examined, a most interesting structure.

Missel Thrush (Turdus viscivorus.).—Well known in every part of the county as the "storm cock." It breeds very early in the spring, and at that time, forgetting its usually shy habits, fearlessly approaches the haunts and dwellings of man.

Fieldfare (Turdus pilaris).—Last winter this bird was very numerous, but for three or four preceding seasons it was a subject of general remark how very few had been seen.

Song Thrush (Turdus musicus).—A great many remain with us during the winter, though I have little doubt that numbers migrate to the south. At this time of the year they betake themselves, in large quantities, to the various turnip-fields.

Redwing (Turdus iliacus).—Far more numerous than the fieldfare, and appearing with much greater regularity: I see hundreds every evening coming in to roost in the laurel-bushes round the house. They appear to be very tender birds, as numbers are picked up dead and dying in the roads whenever we have a winter of any unusual severity. In the spring they congregate in large numbers in the high trees, whence they pour forth a pleasing jargon, which, however, I suppose, does not constitute singing.

Blackbird (Turdus merula).—A constant resident, and too common to require any remarks.

Ringed Ouzel (Turdus torquatus).—Most of the high uncultivated grounds in the county produce this bird in tolerable abundance. I have obtained them and their nests on the Black Hill, the Longmynd, the Steperstones, and the Clee Hills. Wherever the mountain ash grows, they will generally be found.

Hedge Accentor (Accentor modularis).—One of the prettiest, as well as the most common, of our native warblers.

Redbreast (Sylvia rubecula).—A general favourite, in spite of its pugnacious disposition. I have a nest of the robin, taken from a ditch-bank, in which the eggs, five in number, are nearly pure white.

Redstart (Phœnicura ruticilla).—A regular spring visitant, though their numbers vary very considerably.

Stonechat (Saxicola rubicola).—Common, and breeds with us every season, though not so numerous as the next and nearly allied species.

Whinchat (Saxicola rubetra).—Common everywhere.

Wheatear (Saxicola œnanthe).—Found chiefly in the higher grounds, though occasionally met with in the meadows by the riverside.

Grasshopper Warbler (Salicaria locustella).—Rather a rare bird, except in the neighbourhood of Shrewsbury, where it is far from uncommon. Being shy and retiring in its habits, I strongly suspect it is often overlooked, more especially by those who are not well acquainted with its singular note.

Sedge Warbler (Salicaria Phragmitis).—I was not at all aware, till within the last few years, how very common this pretty little warbler is in this part of the county. It not only frequents the sides of our streams and ponds, but I often find it in the hedges, far away from water. The song is pleasing, though at times harsh. The nest is most difficult to discover, being generally placed in the thickest rank herbage, a very little way from the ground.

Reed Warbler (Salicaria arundinacea).—Much less common than the last species. They usually live in colonies by the sides of ponds and meres that abound in reeds, to which they attach their beautiful nests. Ormond Park Pool, Crowsmere, near Ellesmere, and Hawkstone Park, are three localities in Shropshire where they breed in considerable numbers.

Nightingale (Philomela luscinia).—I am sorry to say there are, of late, few well-authenticated instances of the occurrence of the nightingale in this county. Coalbrookdale and Bridgenorth can boast of an occasional visit, but even in those genial soils there seems to be something wanting to induce this most interesting songster to stay with us. What constitutes that "mysterious line" over which it is not supposed to pass? There have been instances of its appearance at Kingsland, and in the Quarry Walk in Shrewsbury, but of course on the outskirts of a town the poor bird would have little chance of remaining long unmolested.

Blackcap Warbler (Curruca atricapilla).—The song of this charming little warbler is nearly equal to that of the nightingale, and is no doubt often mistaken for it. It is very common in this part of the county.

Garden Warbler (Curruca hortensis).—Much more local than the last-mentioned bird, though I do not consider it by any means rare. From its great simliarity to the willow wren, I have no doubt it is often overlooked, and at all times it is a shy bird, pouring forth its song from the thick foliage of some tree or bush, carefully protected from observation.

Common Whitethroat (Curruca cinerea). — Probably the most numerous of all our spring birds: arriving with the greatest regularity they appear to disperse at once over the whole face of the country, and as all localities seem to them to be alike, every bush, copse and hedge is speedily tenanted by them.

Lesser Whitethroat (Curruca sylviella).— This bird was always represented to me as exceedingly rare in these parts; however, by a little careful observation, I am happy to say that such is not at all the case; in fact, in this district I consider it to be very common. In their habits they are even more shy and retiring than the common whitethroat, and are thus easily overlooked, though, when once a person is acquainted with their little harsh note, it is astonishing how frequently you may find them. They nest regularly every season in the shrubberies close to my house.

Wood Warbler (Sylvia sylvicola).—Easily distinguished from the other willow wrens by its superior size and much brighter yellow markings; it also makes its appearance many days later. The eggs are darker and more strongly marked than those of either of its congeners.

Willow Warbler (Sylvia trochilus).—Very common, and most evenly distributed over the whole face of the county.

Chiffchaff (Sylvia rufa). — Punctual almost to a day, this most interesting little warbler appears amongst us as if by magic, its cheerful note of "chiff-chaff" telling us that spring has really commenced. How its tiny little form is wafted with such unvarying regularity over the stormy billows of our Channel will, I trust, ere long, from the attention now paid to that most interesting subject, be cleared from all mystery and doubt.

Golden-crested Regulus (Regulus cristatus).— Constantly resident with us: they seem to delight in plantations of larch or spruce, though the yew-tree is a very favourite resort, especially in the winter. I have found their beautiful nests appended to the under side of the branches of that tree, as well as of the silver and spruce firs.

Firecrested Regulus (Regulus ignicapillus).—Has been met with occasionally in this county. Lord Hill has specimens in his collection, killed at Hawkstone: and more recently I have seen two examples obtained in a garden in Shrewsbury. I believe Mr. Eyton has also met with the bird at Eyton.

Great Tit (Parus major), *Blue Tit* (P. cæruleus), *Cole Tit* (P. ater), *Marsh Tit* (P. palustris).—I have few remarks to make on these four species of the titmouse. It is sufficient to say that they are all equally common, and I have frequently seen each variety feeding at the same time, on the boughs of a larch-tree near the house.

Longtailed Tit (Parus caudatus).—Quite as numerous as any of the preceding species; but as they are more erratic in their movements and habits, they are perhaps not met with quite so often. They appear to keep together more than the rest of their tribe, and move about in much larger flocks. When we consider that each pair of birds rears from seven to ten, or even more than that number of grotesque little ones, this is not much to be wondered at.

Bohemian Waxwing (Bombycilla garrula).—I have seen several specimens of this beautiful bird, killed in Shropshire, though their occurrence there is most uncertain. I think the last I saw, in the flesh, was obtained in a garden in or near the town of Shrewsbury. I remember my father, the late Rev. John Rocke, shooting four, out of a flock of seven or eight, within half a mile of this house: this occurred in February, 1829. One pair of these birds is at the present time in my collection, and in an excellent state of preservation; the others belong to Mr. Henry Shaw, naturalist, of Shrewsbury, who has retained them as the last birds ever stuffed by his father.

Pied Wagtail (Motacilla Yarrellii).—One of our commonest and most familiar birds. I still hope some day to be able to add the continental white wagtail to our list of visitants, although it has hitherto been unknown, or perhaps overlooked, in this district.

Gray Wagtail (Motacilla boarula).—This fine wagtail is far from uncommon, being found on most of our streams and rivulets. Though not often seen in the full summer plumage, I believe they breed here, their numbers being considerably increased towards autumn.

Ray's Wagtail (Motacilla Rayi). — Tolerably plentiful, though more locally distributed than either of the preceding species.

Tree Pipit (Anthus arboreus). — Exceedingly common. Few birds exhibit greater variety in the colour and markings of their eggs.

Meadow Pipit (Anthus pratensis). — In October last I saw a bird fly up in a turnip-field, amongst five or six pipits or titlarks, which at first I took to be a canary. I shot it, and it turned out to be a very curious *lusus* variety of the pipit, the whole plumage being of a bright straw-colour, without any dark markings, and the legs and bill white. I have it preserved in my collection.

Sky Lark (Alauda arvensis).—Common everywhere.

Wood Lark (Alauda arborea).—Not nearly so common as the sky lark, though a good many are, at times, to be found distributed over the county.

Shorttoed Lark (Alauda brachydactyla).—Has occurred once to Mr. Henry Shaw, of Shrewsbury.

Lapland Bunting (Plectrophanes lapponica).—There are two good specimens of this rare bunting in Lord Hill's collection, obtained near Shrewsbury. One of them, a young male, was taken in a lark-net.

Snow Bunting (Plectrophanes nivalis).—Occasionally found on the Longmynd, and other high ground, during the winter.

Common Bunting (Emberiza miliaria).—Common in many parts of the county, though I do not often see it in this district.

Blackheaded Bunting (Emberiza schœniclus).—Very common, frequenting the sides of rivers and brooks.

Yellow Bunting (Emberiza citrinella).—Too common to require any remarks.

Cirl Bunting (Emberiza cirlus).—I cannot help thinking this bird must have been overlooked in this county, or mistaken for the yellow bunting, as I have received specimens from Gloucestershire, and am informed that it nests occasionally in Herefordshire.

Chaffinch (Fringilla cœlebs).—Abundant everywhere.

Mountain Finch or Brambling (Fringilla montifringilla).—Found occasionally in the winter, sometimes in large flocks of its own species, but generally in the company of chaffinches, and the other frequenters of our rick-yards.

Tree Sparrow (Passer montanus).—Exceedingly common in this part of the county. At this time of the year they congregate in flocks of twenty or thirty, and frequent the hedge-rows. They are much smaller and neater in shape than the house sparrow, and can be readily distinguished from them, on the wing, by their shrill chirp and more rapid flight.

House Sparrow (Passer domesticus).—Very numerous.

Greenfinch (Coccothraustes chloris).—One of our commonest birds. In winter they congregate in large flocks, mixed up with the chaffinch and yellow bunting.

Hawfinch (Coccothraustes vulgaris).—The beautiful gardens at Hawkstone are a favourite resort of this bird; it occurs there, at times, in considerable numbers. A large flock also frequented the vicarage-garden at Bishop's Castle a winter or two ago.

Goldfinch (Carduelis elegans).—I much fear this beautiful bird is on the decrease, although at times I still see considerable numbers of them.

Siskin (Carduelis spinus).—A very uncertain visitant, occasionally found on the alder-trees by rivers, associating with the lesser redpole.

Common Linnet (Linota cannabina).—Very numerous.

Mealy Redpole (Linota canescens).—Uncommon, but occasionally met with. I had a good specimen sent to me last spring, killed by Mr. Henry Beckwith, of Eaton Constantine.

Lesser Redpole (Linota linaria).—Very common, and as I often see them about here in the summer I have every reason to believe that they nest with us regularly.

Mountain Linnet (Linota montium).—Nests occasionally on the Longmynd, though far from numerous in any locality. Perhaps it is often overlooked, not being very readily distinguished from the common linnet.

Bullfinch (Pyrrhula vulgaris).—Still common, and nests with us regularly.

Common Crossbill (Loxia curvirostra).—I have not met with this bird for some years. Formerly they appeared in large flocks, and remained for days in the larch plantations. Their movements were most interesting, and they appeared to have very little fear of man.

Parrot Crossbill (Loxia pityopsittacus).—I have only seen two specimens of this bird, obtained near Oswestry.

Common Starling (Sturnus vulgaris).—Abundant.

Rosecoloured Pastor. —(Pastor roseus).—I am informed of the occurrence of this rare bird, in two instances, near Shrewsbury.

Raven (Corvus corax).—This fine bird still exists in considerable numbers on Clun Forest, the Stiperstones, and other high localities. I have myself seen it this summer, when looking for the curlew's nest. Occasionally its wild croak is heard passing over this house, but I fear it has been driven from most of its former breeding-places.

Carrion Crow (Corvus corone).—With scarcely a friend in the world, the old carrion crow still survives, and seems to set the destructive hand of man at defiance.

Hooded Crow (Corvus cornix).—Occasionally met with, but not very common; has been killed here in one instance.

Rook (Corvus frugilegus).—The farmer's true friend, and, I believe, in every instance where its destruction has been completed, the crops have rapidly followed suit.

Jackdaw (Corvus monedula).—Exceedingly numerous in the rocks of Downton, and the ruins of Ludlow Castle, as well as in other localities.

Magpie (Pica caudata).—Wherever the hand of the gamekeeper relaxes this handsome bird is still found in great abundance.

Jay (Garrulus glandarius).—Common in our woods, and nests with us most seasons.

JOHN ROCKE.

Clungunford House, Shropshire,
September 6, 1865.

(To be continued.)

Early Arrival of the Fieldfare.—On Monday, August 21st, whilst driving from Tring to Great Berkhampstead, I was surprised to see a large flock of fieldfares (*Turdus pilaris*), nearly filling the trees for some yards on each side of the road. Before coming close to them I fancied they must be missel thrushes (*Turdus viscivorus*), which are wont to flock at this time of year, but upon pulling up my pony to observe them more closely, I found them to be indubitable fieldfares. So early an arrival of these migratory birds is, I believe, most unusual, and the fact may be worthy of record in the pages of the 'Zoologist.'—*H. Harpur Crewe; The Rectory, Drayton-Beauchamp, Tring, September* 6, 1865.

Shore Lark near London.—I have a living specimen of the shore lark (*Alauda alpestris*), which was caught on Hackney Marshes by a birdcatcher last March: having been caged so long it has now become very tame. Its call is something similar to that of the sky lark.—*Thomas Eedle; 9, Maidstone Place, Goldsmith's Row, Hackney Road, N.E., September*, 1865.

Redwinged Starling near Liphook.—While on a visit near Liphook, in Hampshire, I saw a specimen of this rare species on a beech tree in the shrubbery; he was not more than ten or fifteen yards from me, so I was enabled to watch him distinctly: he was of a glossy black, the shoulders of the wing being red. In his actions he strongly resembled the tits, hanging head downwards continually, apparently searching for insects. This bird was seen by me on the 16th of May, 1865; the family had observed it for about a fortnight previously: it has since left the neighbourhood.—*W. Jesse; Maisonette, Ingatestone, August* 3, 1865.

Roller near the Land's End.—I saw a specimen yesterday of this species, which, on dissection, appeared to be an old female which had been killed a day or two since near the Logan Rock, a locality favourable for this bird, as other specimens (my own amongst the rest) have been procured from there.—*Edward Hearle Rodd; Penzance, September* 16, 1865.

The Villous Coating of a Cuckoo's Stomach.—I have this day (August the 21st) examined the stomach of a cuckoo, a bird of the year, which had been shot yesterday.

The bird is a late straggler, for we generally miss this cheering harbinger of spring nearly a month earlier: it was in beautiful plumage and excellent condition: sex female. The stomach contained twenty larvæ, nineteen of Pieris Napi and one of the common "tiger moth." This last had been just long enough subjected to the processes of digestion to cause the hairs to scale off its integument with the slightest movement or touch; some of these hairs had already become scattered over the mucous lining of the stomach, and were difficult to distinguish in colour, form and size from a second series of hairs, which I found actually adherent to and growing from a certain region or tract of the lining membrane itself. With a fine pair of forceps I drew several of these hairs from their mucous bed, and found them to be perfect hairs, having a bulb or root exactly similar to that of an ordinary hair on the outer surface of the body. Supposing the organ to be *in situ*, along its internal lower concavity I found these hairs most numerous, arranged first in a double brush-like row, parallel on either side of the median line, and equal in size, colour and form. These two rows seemed gradually to be lost as they expanded themselves into a series of larger hairs, scattered irregularly over the interval of space between the termination of the rows and the point where the stomach opens into the duodenum. These larger hairs reminded me of the points on the cylinder of a musical-box, apparently confused, and yet, on closer inspection, evidently arranged with some important ulterior object in view. I should say, after a careful inspection of these hair-like bodies, that they serve a purpose rather mechanical than absorbent, nor do they resemble a true villus in their structure. Their points or extremities all take one direction naturally, and that is towards the cardiac or œsophageal end of the organ. Then why should they be villi at all, whose office is simply to absorb sapid food flowing over their surfaces? Why should the cuckoo require a more rapid and perfect, not to say supplementary, or rather superadded arrangement of digestive apparatus than other insectivorous birds? I cannot see it, because its food is ever plentiful, and it dwells amid the larvæ, &c., to whose retreats instinct guides the bird; moreover, the stomach is in itself a perfectly digesting organ. May not these hair-like processes, set deeply in a highly mobile and muscular layer of the stomach, serve the purpose of retaining within the organ its living contents, which are so often rapidly thrown into it, and which might often, by their own efforts to escape, otherwise interfere with the perfect digestion of a full meal? I am quite certain as to the hairs being of two kinds, *viz.* one set those of the larvæ swallowed and partially digested, and another set, very similar in appearance, belonging to and a distinct arrangement of the organ itself. I discard altogether, I may add, the theory of these hairs being the result of disease. There is far too evident design in their arrangement and position, and besides it is not likely that a vigorous, fleshy, well-fed young bird of the year should be the subject of so considerable a disease of an organ so essential to life and the nutrition of the body as the stomach.—*W. W. Boulton; Beverley, August* 21, 1865.

Hopes of the Black Woodpecker.—I have every hope that I shall be able to send you the particulars of the capture of this species on Dartmoor. I know it was captured there, and had it confirmed the other day by a gentleman who knows the owner, and I have written to him for the date, locality, &c., &c. — *Edward Hearle Rodd; Penzance.*

Quails in Cleveland.—The call-note of the quail has been heard by me this year in the close vicinity of my garden and in the adjoining fields. On the 24th of June, having to go to the village, and the note of the quail sounding continuously from a corn-field, only not in my direct way, I walked through it in the direction of the sound, and, though scarcely expecting it, I flushed both birds. Their note was subsequently heard in the same vicinity, but only sparingly, and a week after the above date seemed to cease entirely.—*J. C. Atkinson ; Danby, Grosmont, York.*

Pure White Gull.—The Rev. M. A. Mathew, in the current number of the 'Zoologist' (Zool. 9734), says, "A large gull, snow-white *all over*, with legs and bill of a uniform green tinged flesh-colour, is somewhat a nondescript, and I should be very glad to hear if any of the readers of the 'Zoologist' have ever met with a similar one, or could give me any light upon the matter." As I have just such a gull in my collection, I beg to offer the following remarks. Possibly Mr. Mathew's bird and mine may prove to be of the same species, but, as he has not given any measurements, I have no guide but colour, coupled with his assertion that it is a large gull. My bird was shot on the Lancashire coast, at Lytham, in February of the present year. Although consorting with other large gulls, it at once attracted attention by its pure white plumage, and many attempts were made to shoot it, but for several days it escaped. At length a friend of mine, observing that it frequented the flats which were left exposed at low water, ran his boat out one morning and waited for the tide to recede. This plan succeeded, for he got a long shot with a cartridge, and killed the bird. As it now stands in my collection, between a great blackbacked gull on one side and a herring gull on the other, it appears intermediate in size between these two. The following are the measurements, although, it should be observed, they can hardly be considered as quite correct, as they were taken after the bird had been stuffed :—

Length of bill from gape	2½	inches.
Entire length from base of bill	25	"
Carpal joint to tip of closed wing	18½	"
Length of tarsus	2¾	"
Middle toe, nearly equal to tarsus, being	2⅝	"

In endeavouring to identify the species, I considered that it could not be an ivory gull, which would be smaller in size, and would have black legs (whereas these are of a brownish flesh-colour), and it also exceeds by measurement the average size of an Iceland gull. Taking into consideration, therefore, the size of the bird, the colour of the plumage, and the length and colour of the tarsus, I came to the conclusion that it must be a very old glaucous gull. I say very old, because, as is well known, that all the gulls when immature are mottled more or less with pale brown; and the adult glaucous gull has the back and wings of a very pale bluish gray colour: it is possible, therefore, that these parts may become white with age. Mr. Mathew's suggestion, that his bird may possibly be an albino, deserves consideration, but, like himself, I have never yet seen or heard of an albino gull of any species. However, whether the birds prove albinos, or very old individuals of a species rare in England, I think we may congratulate ourselves on the possession of a prize not to be obtained every day. I should be glad if Mr. Mathew will favour us with the measurements of his specimen, as further particulars will perhaps decide this interesting question.—*J. Edmund Harting; Kingsbury, Middlesex, September* 19, 1864.

Errata.—In my communication respecting the Birds of the Dorsetshire Coast (Zool. 9665), for "Faroe Isles," read "Farne Isles," and for "Columbia livia," read "Columba livia."—*Id.*

Birdsnesting;

Being a complete Description of the Nests and Eggs of Birds which breed in Great Britain and Ireland.

By EDWARD NEWMAN, F.L.S., F.Z.S.

This work is written expressly for the use of out-of-doors naturalists and that better class of schoolboys who take up Natural History as an instructive recreation. Under each species will be found—

1. The English name.
2. The Latin name.
3. The situation in which the nest is to be found.
4. The materials of which the nest is built, together with any particulars of its shape which may assist in determining by what bird it is built.
5. The number and colour of the eggs, describing such variations as are occasionally met with.

In compiling this work the sources whence I have drawn my information are—

1. My own memoranda.
2. Colonel Montagu's 'Ornithological Dictionary.'
3. Mr. Selby's 'Illustrations of Ornithology.'
4. Mr. Hewitson's 'Oology.'
5. The 'Zoologist,' not only every volume but every number of which abounds in original and highly important observations on the life-history and distinguishing characters of birds.
6. The 'Letters of Rusticus.'
7. Observations, emendations and additions by Mr. Bond, of London, and Mr. Doubleday, of Epping. With the view of making this work as complete as possible, these two gentlemen, our best British ornithologists, have gone over the list, species by species, and, in a manner deserving the warmest and most sincere thanks of all lovers of birds, have corrected whatever they thought erroneous, erased whatever they considered doubtful, and added whatever they believed necessary to make the list complete; so that, as now offered to the public, it must take rank as the most complete descriptive list ever produced on any branch of British Natural History.

Price 1s. 1d., *post free.*

Edward Newman, 9, Devonshire Street, Bishopsgate, London, N.E.

CONTENTS.

INSECTS.—Life-history of Chortobius Davus; of Pygæra bucephala; of Hadena rectilinea, *Edward Newman*, 9745—9747. Description of the Larva of Acidalia rubricata, 9748. Description of the Larva of Toxocampa craccæ, 9748. Life-histories of Sawflies, translated from the Dutch of M. Snellen van Vollenhoven, *J. W. May*, 9749.

PROCEEDINGS OF SOCIETIES.—Entomological Society, 9755.

Popular Names in Natural History, *Albert Müller*, 9759.

SUCKLERS.—A Male Chimpanzee at the Zoological Gardens, 9759.

BIRDS.—Ornithological Notes from Shetland, *H. L. Saxby, M.D.*, 9760. Ornithological Notes from North Lincolnshire, *John Cordeaux*, 9772. Ornithological Notes from Shropshire, *John Rocke*, 9775. Early Arrival of the Fieldfare, *Rev. H. Harpur Crewe, M.A.*, 9782. Shore Lark near London, *Thomas Eedle*, 9782. Redwinged Starling near Liphook, *W. Jesse*, 9782. Roller near the Land's End, *Edward Hearle Rodd*, 9782. The Villous Coating of a Cuckoo's Stomach, *W. W. Boulton*, 9782. Hopes of the Black Woodpecker, *Edward Hearle Rodd*, 9783. Quails in Cleveland, *Rev. J. C. Atkinson, M.A.*, 9784. Pure White Gull, *J. E. Harting, F.Z.S.*, 9784.

TO CORRESPONDENTS.

Papers with the following signatures unavoidably stand over:—Thomas Cornish, W. Jesse, J. C. Atkinson, W. B. Tegetmeier, Edward R. Alston, T. E. Gunn, William Allen, George Maw, Henry Hadfield, Edward Hearle Rodd.

THE ENTOMOLOGIST.

THE ENTOMOLOGIST for this Month (October) contains papers on BRITISH INSECTS with the following signatures:—Percy Andrews, G. C. Bignell, Charles M. Bonnor, John R. S. Clifford, S. A. Davis, John S. Dell, Ellen Dibben, Henry Doubleday, William Gibson, W. Hayward, Timothy Last, Henry Moncreaff, Albert Müller, Edward Newman, Henry Newman, Wilson Neville, J. Pristo, Frederick Smith, S. Stone, N. C. Tuely, John N. Winter, and Alfred Wright.

Owing to the unusual press of matter, several papers intended for the 'Entomologist' are inserted in this day's 'Zoologist.'

Papers with the following signatures stand over, together with thirty-one of my life-histories, numerous extracts, and the Reports of the Entomological Society:—G. C. Bignell, G. R. Crotch, S. A. Davis, jun., W. Gregson, H. J. Harding, W. H. Hayward, B. Holland, A. G. Latham, B. T. Lowne, E. H. Moberley, H. Moncreaff, W. Nickisson, J. A. Power, J. Pristo, W. Watkins.

London: EDWARD NEWMAN, Printer, 9, Devonshire Street, Bishopsgate, N.E.